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*Global Trends in Childhood Obesity: Who Should we Blame?*

**KEY WORDS:** childhood obesity; epidemic; food; media; advertising; marketing

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# Global Trends in Childhood Obesity: Who should we blame?

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## ABSTRACT

Obesity is considered around the world as one of the worst epidemics of the 21st century. The overweight and obesity which is commonly seen in adults is now a major health problem for children and young people. Although childhood obesity has been there over a long period of time in history, there is a growing indication that the incidence rates these days are greater than ever before. For children the prevalence of overweight has increased at such levels that governments of various countries need to take drastic measures in the coming years to curb this growing epidemic. Childhood obesity is a major concern not only in developed countries, but also for developing countries where obesity is more commonly seen in the higher socioeconomic classes. One of the biggest question that needs to be answered is who should we blame for the ever increasing trends in childhood obesity.

This manuscript will therefore define what obesity means and will illustrate the global trends seen in obesity. The major health problems that may occur in obese children will also be discussed along with the important factors that cause overweight in children.

## DEFINING OBESITY

The meaning of obesity has transformed over time<sup>1, 2</sup> and it can be defined as additional body fat. The Centre for Disease Control and Prevention in the United States (US) defines overweight as at or higher than 95th percentile of body mass index (BMI) for age and at possibility for overweight as between 85th to 95th percentile of BMI for age.<sup>3, 4</sup> From a medical perspective, obesity may be defined as a “multifactor syndrome that consists of physiological, biochemical, metabolic, anatomical, psychological, and social alterations”<sup>5</sup> which is characterised by an increase in body weight. One must understand that overweight and obesity are not the same and there is a clear distinction between them. While overweight is an increase in body weight in relation to height<sup>6</sup>, obesity is an unusually high percentage of body fat. A child with a BMI over the 97th percentile in regard to age and gender is regarded to be obese. Likewise, a child with a BMI greater than the 90th but less than the 97th percentile would be considered to be overweight.<sup>7</sup>

## OBESITY AS A GLOBAL ISSUE

The World Health Organisation has labelled obesity as one of the worst epidemics in the 21st century. Combating the prevalence of obesity has become a major focus for all developed and developing countries around the world. Children are more prone to becoming obese in developed countries than in developing countries. In the US there has been an increase up to 30% in the prevalence of obesity in children and adolescent. From 1971 through 1974, 5.8% of 4 to 5 year old girls were obese, in

contrast to 10% from 1988 through 1994.<sup>8</sup> During the period 1988 to 1994, the prevalence of overweight among children from 2 months to 5 years of age was consistently higher in girls than boys.<sup>8</sup> The 1995 National Centre for Health Statistics study found that 4.7 million children aged 6 to 17 years in US were overweight.<sup>9</sup>

In the United Kingdom (UK), obesity amongst children aged 2 to 10 rose from 9.9 to 13.7% between 1995 and 2003.<sup>10</sup> The proportion of children aged 2 to 10 who were overweight increased from 22.7% in 1995 to 27.7% in 2003. Among boys, obesity increased from 9.6% in 1995 to 14.9% in 2003 and, for girls, obesity increased from 10.3% in 1995 to 12.5% in 2003.<sup>10</sup>

The prevalence of obesity in Australia has increased remarkably in children over the past few decades.<sup>11, 12</sup> The Australian Institute of Health and Welfare reported that 31.3% children aged 7-15 years were overweight in 1995 compared to 19.9% children in 1985. Similarly, 10.2% of children were obese in 1995 compared to 2.6% of children in 1985.<sup>13</sup>

In Asian countries obesity is a growing problem.<sup>14</sup> The epidemic that was seen in developed countries is now seen in many Asian countries. In countries like China, childhood obesity has increased from 0.5% in 1985 to 5% in 1998. The incidence of childhood obesity in Japan has gone up from 5% to 10% during the past 20 years.<sup>15</sup>

## CONSEQUENCES OF OBESITY SEEN DURING CHILDHOOD

Children who are obese are more prone to health problems than children who are not obese. Some of the health problems that may take place in obese children include the following:

### ***Increasing Insulin Resistance***

Children who are obese have increasing indication of insulin resistance, resulting in hyperinsulinemia as a compensating mechanism to maintain euglycemia. When the amount of resistance surpasses the secretory capability of the islet cells, then glucose intolerance and later Type 2 diabetes arise.<sup>16</sup>

### ***Diabetes Mellitus***

While Type 2 diabetes mellitus is more strongly associated with obesity seen in adults, the incidence of both Type 1 and Type 2 diabetes seen in children has increased dramatically. In the United States, Type 2 diabetes accounts for up to 45% of new cases in childhood.<sup>17</sup> If Type 2 diabetes increases in children in the future, we face the possibility of having coronary heart disease seen in young children.

### ***Cardiovascular Risks***

The association between obesity and cardiovascular risk has been well established in the medical field. There is now overwhelming evidence to show that childhood obesity is also linked with

undesirable cardiovascular factors. These risk factors comprise raised fasting lipids, hypertension, and increased left ventricular mass.

### ***Puberty and Related Disorders***

For girls, puberty may set in early, resulting in an earlier age of menarche. Moreover, early maturing girls are more probable to be obese through adolescence, with this probability continuing into adulthood.<sup>18, 19</sup> On the other hand, boys have a substantial difference in timing of puberty. One study showed a negative relationship of obesity and sexual maturation in boys.<sup>19</sup> Moreover, boys who are obese are prone to pubertal gynecomastia.<sup>20</sup>

### ***Respiratory Disease***

It has been put forward that asthma is more commonly seen in children who have a sedentary lifestyle. Children who have a sedentary life style are also more prone to becoming obese. Different studies have shown a relationship involving the increase in childhood obesity and asthma.<sup>21, 22</sup> A range of other respiratory irregularities such as reduced functional residual capacity, impairment of diffusion capacity and obstructive changes have also been seen in obese children.<sup>23, 24</sup>

### ***Psychological Problems***

Children who are obese are prone to psychological problems.<sup>25</sup> Research has shown that children who are obese are adversely affected, resulting in higher levels of unhappiness, and having a higher tendency of being alone and anxiety.<sup>26</sup> Moreover, obese children who are affected with psychological problems are more prone to engage in risky behaviours like tobacco and alcohol use.

## **FACTORS THAT CAUSE OVERWEIGHTNESS IN CHILDREN**

Over the years researchers have argued the various factors that cause overweight in children. Some have argued that genetics probably is one of the key factors that causes overweight in children while others have not given much importance to genetics and have blamed environmental factors for obesity. For instance, the variety of food supply available 24 hours a day and 365 days a year from fast food outlets, changes in dietary properties of food that is depending on preserved food, all create a contaminated environment responsible for obesity and eating disorders. The variety of environmental factors involved and their intricacy and systems are enormously complex. Therefore, this section will discuss the two most important factors that contribute to overweightness and obesity in children, namely, the effects of globalisation and the effects of the media.

### ***Changes in Eating Patterns – The Effects of Globalisation***

The effects of globalisation can be clearly seen in the 21st century. Individuals are living in an era where there is more information than a person can handle. The best way to put this is who controls us? Do we control technology or does technology control us? Researchers and scientists around the

world have warned about the rate at which human beings are advancing as this has a serious impact on the world in which we live. Some say that we have become so advanced that we might extinct ourselves. Organisations such as the Bulletin of the Atomic Scientists at the University of Chicago declared that we are just five minutes from midnight to catastrophic destruction.<sup>27</sup> The number of minutes before midnight is a extent of the degree of environmental (global warming), technological (globalisation), and nuclear dangers that the human civilization faces.<sup>27</sup>

Due to the increasing globalisation and problems seen in financial markets around the world, both parents are working longer hours to cope up with the ever increasing cost of living which in turn affects the way in which parents and children consume food. These include foods eaten by parents and their children in restaurants or fast food outlets. As more parents eat from restaurants or fast food outlets, this creates an environment which encourages children to depend more on food that is not cooked at home. This indirectly is changing their eating behaviour which generates an obesogenic environment. An atmosphere that encourages the overconsumption of energy-dense foods can be defined as an obesogenic environment. In the United States (US), food that was eaten from food outlets in 1999 accounted for 47% of total food spending compared to 25% in 1971. Due to the rapid pace of daily life a 22% increase was seen as more families preferred to eat food that was not cooked at home.<sup>28, 29</sup> This trend towards eating food from food outlets is mainly due to lack of time and relief of stress for parents. Families would rather socialise and spend their time in leisure activities rather than cooking and cleaning up afterwards. Due to the lack of time which puts more pressure on parents particularly for mothers who work, has made them to shift their priorities from meal preparation towards greater convenience of eating from restaurants and fast food outlets.<sup>30</sup>

### ***Effects of media (television viewing)***

In today's digital era, television plays a key role in almost everyone's life. From a child's perspective, the role of television can be viewed as a double edged sword. On one hand, television programs can be used as an educational tool for children, where it can be used to enhance their knowledge. On the other hand, television viewing can have detrimental effects on the health of children, that is, children would rather watch television than engage in physical activity which may result in serious health problems like overweight and obesity.

### ***Issues concerning television advertising directed to children***

For the past 15 years, television advertisements have been blamed as one of the major contributing factors for childhood overweight due to the nature and content of advertisements aired on television. As health professionals some of the questions that we need to ask are: Do television advertisements lure children to buy products that are marketed on television? Do these advertisements present a truthful or deceptive representation in relation to the product that is marketed? All of these questions have been greatly debated over the years and we will now see the contentious nature of products marketed on television which are directed to children.

Since 1985 there has been a great push by food industries to market food products to children. One of the reasons why this has become a marketing strategy is because children have a

greater influence over their parents in the way money is spent. For example, in the United States children aged 12 years or younger in 2000 controlled the spending of \$28 billion. Most of the spending was from their own pocket money. Furthermore, children influenced \$250 billion worth of family spending in 2000.<sup>31</sup> The fundamental concern about television advertising is whether it 'exploits' children. In this context, advertising is seen negatively with the condemnation that advertising persuades children to buy goods they do not need and spend money they may not have. Children's wish to have products they have seen on television is said to lead to 'pester power' which means that children pester their parents to buy things for them.<sup>32</sup> Since 1995 a large proportion of advertisements that are aired on television promote food or drinks. One study showed that half the advertisements aimed at children in the United Kingdom was concerned about food.<sup>33</sup> A third of these advertisements were for foods low in nutrients.<sup>33</sup> In many countries children do not eat a well balanced diet. Gamble et al. examined about 350 advertisements on Saturday mornings in the United States and found that about two-thirds of advertisements that were aired on the television were about food.<sup>34</sup> The authors concluded that a typical children's meal in the advertisement consisted of a cheeseburger, french fries, fizzy drink, and a toy.<sup>34</sup> Children in the United States and United Kingdom are exposed to about 10 food advertisements every hour on the television and the majority of them are for sweets, aerated drinks, food with low nutrient values and sweetened breakfast cereals.<sup>35</sup>

The concern about the potentially detrimental effects of food advertising on television must be seen from a wider perspective. Some food industries have argued that food advertisements that are aired on television contain advertisements that advertise dairy products, fruits and vegetables. While this is true, the question that needs to be asked is how many children eat enough fresh fruits and green vegetables. Children have a much stronger preference for foods high in sugar and fat content that can lead to overweight and obesity.<sup>36</sup> Signorielli et al. found that even when controlling for certain variables the amount of television viewing by fourth and fifth grade school children was positively correlated with bad eating habits and faulty understanding of the principles of nutrition.<sup>37</sup> Donkin et al. found that children between seven to eleven years who had watched recently advertised food products with low nutritional value on television requested their parents to buy those products for them. The authors found that such requests were more seen in families coming from lower income households.<sup>38</sup> Bolton found that children who were exposed to television advertising were more prone to bigger quantities of snack food consumption and that their viewing had an independent effect on diet and caloric intake.<sup>39</sup> Similarly, the Institute of Medicine Committee on Food Marketing and the Diets of Children and Youth strongly advocates that children's exposure to media advertising like television is linked with increase in weight in children aged 2 to 11 and hence children must not be exposed to television advertising.<sup>40</sup>

## Discussion

In today's era overweight and obesity in children have become problems created by us, that is, they are socially engineered problems. As no one cause is to hold responsible, it is hard for any group or organisation to take blame for the current obesity crisis. Health professionals must support a variety of measures to curb the epidemic of obesity. Due to the multifactorial nature of obesity it is imperative that different steps be undertaken. In addition, the whole community as a whole must work together to solve this issue, which should include families, schools, government and non-government organisations, transport and food and other industries. Some of the immediate steps<sup>7</sup> that need to be taken by various stakeholders of different countries can be summarised as follows:

Stakeholders to be involved	Steps for action
Government	<ul style="list-style-type: none"><li>• Establish a independent task force that will monitor the epidemic of obesity across the country</li><li>• Encourage schools to embrace a health promoting school approach. This would enable healthy foodstuffs to be sold at school canteens</li><li>• Develop stricter guidelines regarding advertising and marketing of food products to children</li><li>• Invest in environments that promote physical activity for the community</li></ul>
Industry and media	<ul style="list-style-type: none"><li>• Develop better food and beverage packaging standards that provide accurate information to the community as a whole in relation to food and beverage products</li><li>• Media, especially the television industry, need to take a better approach in relation to reducing the amount of advertisements that are directed to children</li></ul>
Health care professionals	<ul style="list-style-type: none"><li>• Need to keep track of body mass index in children and provide appropriate information that would help parents and children in dealing with the issues of overweight and obesity</li></ul>

Some of the long term strategies at a societal level that can be suggested for reducing the epidemic can be summarised as follows:

1. Parents must take a proactive role in encouraging their children to engage in physical activity. This would involve a reduction in the amount of time their child spends with the media like the use of television, computer and video games. An increase in children's physical activity would be beneficial as this would reduce sedentary behaviours seen among children in the long run.
2. Parents must act as role models for their children and engage in more healthy dietary intakes (reduced consumption of food eaten at food outlets) and active lifestyles (engaging in physical activity).

3. School teachers should embrace the health promoting schools approach which will create a better environment for children and will provide them with the necessary skills for lifelong physical activity.



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